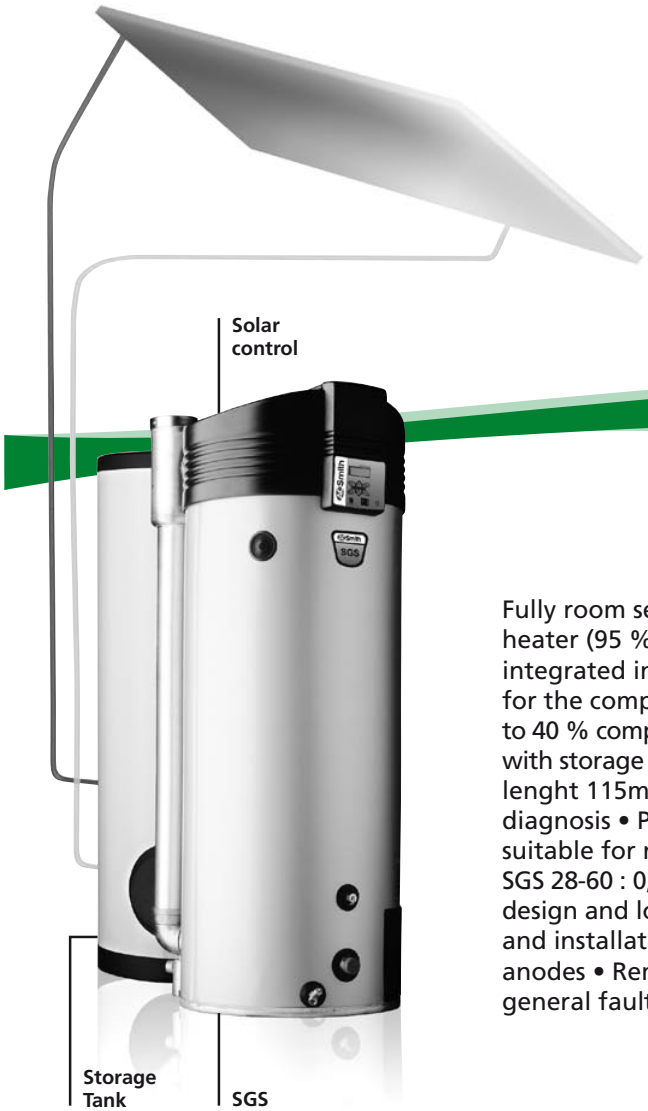
SGS

Condensing High Efficiency Gas-Solar Water Heater

SGS - 28/30/50/60/80/100



Fully room sealed condensing high efficiency gas-solar water heater (95 % gross) • Maximum solar contribution through fully integrated intelligent solar controller • 1 control and display unit for the complete installation • Extra solar contribution possible up to 40 % compared to standard solar systems • Suitable in combination with storage tanks up to 3000 liters • Flexible flue options (maximum lenght 115m) • Thermocontrol for easy flexible control / fault diagnosis • Programmable for legionella purge cycle • All models suitable for natural or LP gas • Meets latest EPC standards: SGS 28-60 : 0,902 • Scale formation is reduced through the improved design and location of the heat exchanger • Very easy maintenance and installation • SGS 80 - SGS 100 standard applied with powered anodes • Remote control connection • Voltage-free contact for general fault indication • Unvented kits are optional

Innovation has a name.

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SGS

Technical specifications

		SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100
Gas data natural gas 2H (G20)							
Input*	kW	32.1	34.5	52.6	63.2	86.6	105.5
Output	kW	30.5	32.7	48.8	59.6	81.9	99.8
Inlet pressure	mbar	20	20	20	20	20	20
Burner pressure	mbar	8.5	8.5	8.5	11.5	6.0	6.0
Gas consumption **	m^3/h	3.1	3.3	5.0	6.0	8.3	10.1
Diameter injector	mm	4.90	5.10	7.00	7.10	6.30	6.80
Max. flue gas temperature	°C	70	50	75	75	50	50
Flue gas discharge	kg/h	56.8	61.1	85.4	101.4	141.9	164.3
Gas data butane gas 3+ G30							
Input*	kW	30.7	32.8	50.6	59.4	-	-
Output	kW	29.8	31.8	48.1	56.9	-	-
Inlet pressure	mbar	30	30	30	30	-	-
Burner pressure	mbar	-	-	-	-	-	-
Gas consumption **	kg/h	2.2	2.4	3.7	4.3	-	-
Diameter injector	mm	2.50	2.60	3.40	3.80	-	-
Max. flue gas temperature	°C	70	50	75	75	-	-
Flue gas discharge	kg/h	60.0	62.2	86.0	101.9	-	-
Gas data propane gas 3+ G31							
Input*	kW	29.0	30.9	50.3	59.1	84.8***	103.3***
Output	kW	28.1	29.8	47.7	56.9	81.9***	99.8***
Inlet pressure	mbar	37	37	37	37	30***	30***
Burner pressure	mbar	-	-	-	-	13.0***	13.0***
Gas consumption **	kg/h	2.1	2.2	3.6	4.2	6.1***	7.4***
Diameter injector	mm	2.50	2.60	3.40	3.80	4.70***	5.10***
Max. flue gas temperature	°C	70	50	75	75	50***	50***
Flue gas discharge	kg/h	54.3	56.5	85.1	101.0	142.1***	176.4***
Draw-off capacity							
Storage capacity	l	217	368	368	368	460	460
Max. temperature setting	°C	80	80	80	80	80	80
T_{cold} = 10°C / T_{set} = 65°C							
30 min ΔT=44°C	l	457	642	784	897	1139	1296
60 min ΔT=44°C	l	755	961	1261	1461	1939	2270
90 min ΔT=44°C	l	1053	1280	1738	2043	2737	3245
120 min ΔT=44°C	l	1350	1599	2215	2625	3540	4220
Continuous ΔT=44°C	l/h	595	638	954	1164	1601	1950
Heating-up time ΔT=44°C	min	22	35	23	19	17	14
30 min ΔT=50°C	l	402	565	690	773	1002	1140
60 min ΔT=50°C	l	664	846	1110	1286	1706	1998
90 min ΔT=50°C	l	926	1126	1530	1798	2411	2856
120 min ΔT=50°C	l	1188	1407	1950	2310	3115	3714
Continuous ΔT=50°C	l/h	524	562	840	1025	1409	1716
Heating-up time ΔT=50°C	min	25	39	26	22	20	16
30 min ΔT=55°C	l	366	513	627	703	911	1036
60 min ΔT=55°C	l	604	769	1009	1169	1551	1816
90 min ΔT=55°C	l	842	1024	1391	1634	2191	2596
120 min ΔT=55°C	l	1080	1279	1772	2100	2832	3376
Continuous ΔT=55°C	l/h	476	511	763	932	1281	1560
Heating-up time ΔT=55°C	min	27	43	29	24	22	18
Electrical data							
Power consumption	W	275	275	275	275	600	690
Power supply	VAC/Hz	230(-15% / +10 % VAC)					
General							
Fan rotational speed at ignition	r.p.m.	4500	4500	4500	4500	2790	3120
Working speed fan	r.p.m.	5000	5400	6000	6660	5100	5700
Pressure differential	Pa	635/605	855/825	885/855	1085/1055	1005/975	1145/1115
Diameter of air restrictor	mm	23	23	28	29	36	38
Anodes	-	4	4	4	4	2-electric	2-electric
Maximum working pressure	bar	8					
Shipping data							
Empty weight	kg	177	214	214	214	480	480
Max. weight	kg	394	582	582	582	940	940
Weight incl. packaging	kg	197	234	234	234	491	491
Width packaging	mm	870	870	870	870	920	920
Height packaging	mm	1550	2080	2080	2080	2060	2060
Depth packaging	mm	950	950	950	950	1020	1020

*** 3p (G31)

* Gas data on gross value
** Gas consumption at 15°C en 1013,25 mbar

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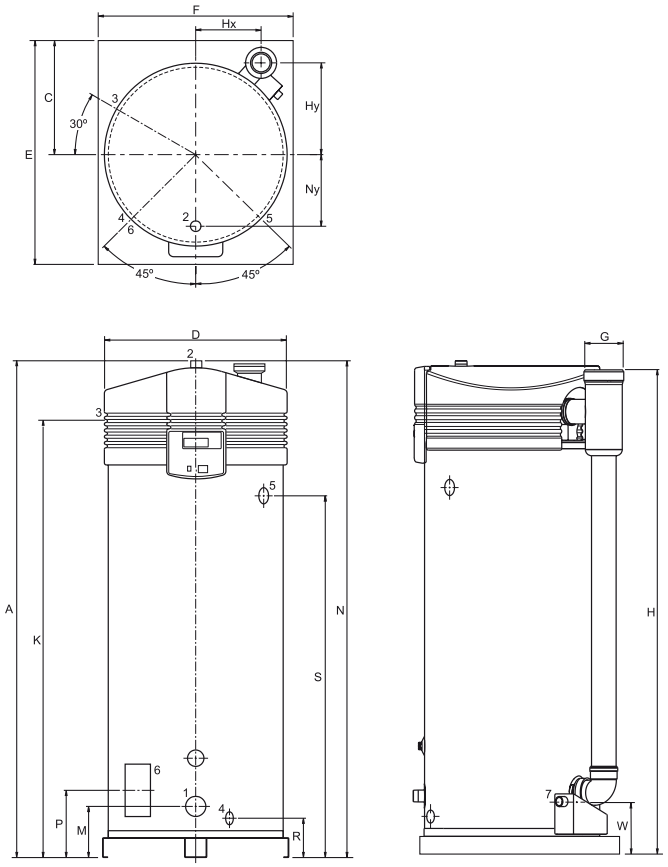
Dimensions SGS 28-60



	SGS 28	SGS 30	SGS 50	SGS 60
A	1485	2005	2005	2005
C	490	490	490	490
D	705	705	705	705
E	925	925	925	925
F	850	850	850	850
G	80/125	100/150	100/150	100/150
H	1460	2000	2000	2000
Hx	265	265	265	265
Hy	375	375	375	375
K	1365	1895	1895	1895
M	265	255	255	255
N	1485	2005	2005	2005
Ny	205	205	205	205
P	265	270	270	270
R	180	170	170	170
S	995	1505	1505	1505
W	220	240	240	240

1	Cold water connection	R1 1/2
2	Hot water connection	R1 1/2
3	Gas valve connection	Rp 3/4
4	Drain valve connection	3/4
5	Temperature and pressure valve	1 / 11.5 NPT
6	Inspection flange	95x70
7	Condensate drain	Ø40 (SGS 28) Rp1 (SGS 30-60)

On all SGS units 3 year warrranty is appliccable on the tank and 1 year on all parts.

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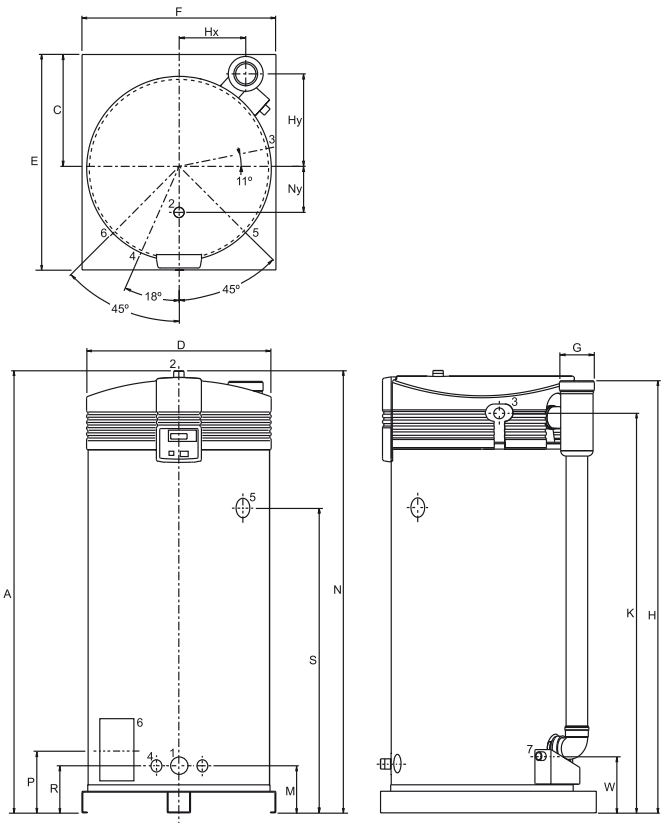
Dimensions SGS 80-100



	SGS 80	SGS 100
A	2060	2060
C	530	530
D	850	850
E	1000	1000
F	900	900
G	130/200	130/200
H	2015	2015
Hx	310	310
Hy	440	440
K	1855	1855
M	225	225
N	2060	2060
Ny	205	205
P	290	290
R	225	225
S	1425	1425
W	240	240

1	Cold water connection	R1 1/2
2	Hot water connection	R1 1/2
3	Gas valve connection	Rp 3/4
4	Drain valve connection	3/4
5	Temperature and pressure valve	1 / 11.5 NPT
6	Inspection flange	95x70
7	Condensate drain	Rp1

On all SGS units 3 year warrranty is appliccable on the tank and 1 year on all parts.

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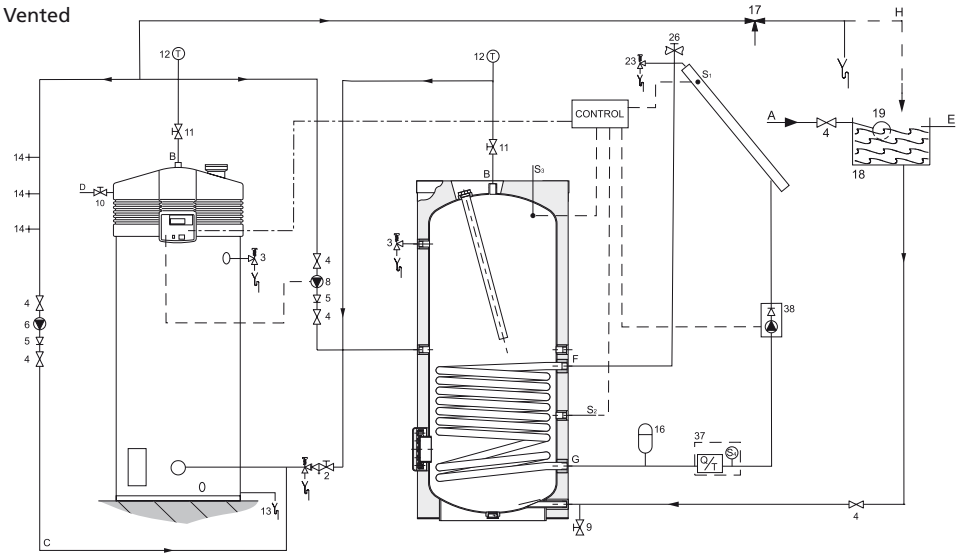
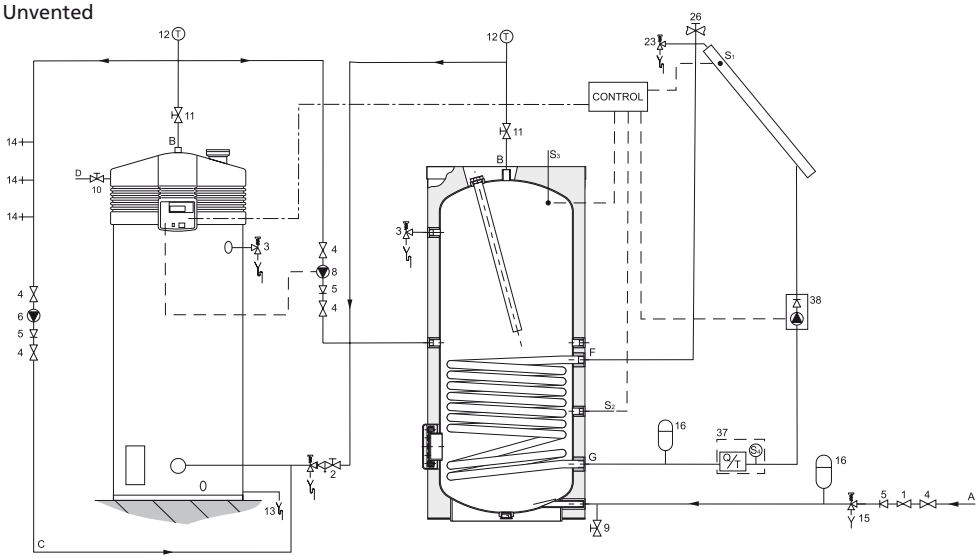
Installation diagrams

Vented



Unvented



1 Pressure reduce valve
2 Inlet security group
3 Temperature and pressure valve
4 Stop valve
5 Non-return valve
6 Circulation pump
9 Drain valve
10 Gas cock
11 Isolating valve
12 Temperature gauge
13 Condense drain
14 Hot water outlets
16 Expansion vessel
17 Three way valve
18 Water cistern
19 Float valve
23 Over pressure security group
26 Air bleed
37 Flowmeter
38 Pompmodule solar
S1 T-collector
S2 T-tank
S3 T-top tank
S4 T-return solar

A Cold water supply
B Hot water outlet
C Circulation pipe
D Gas supply
E Water overflow
F Coil inlet
G Coil outlet
H Expansion pipe

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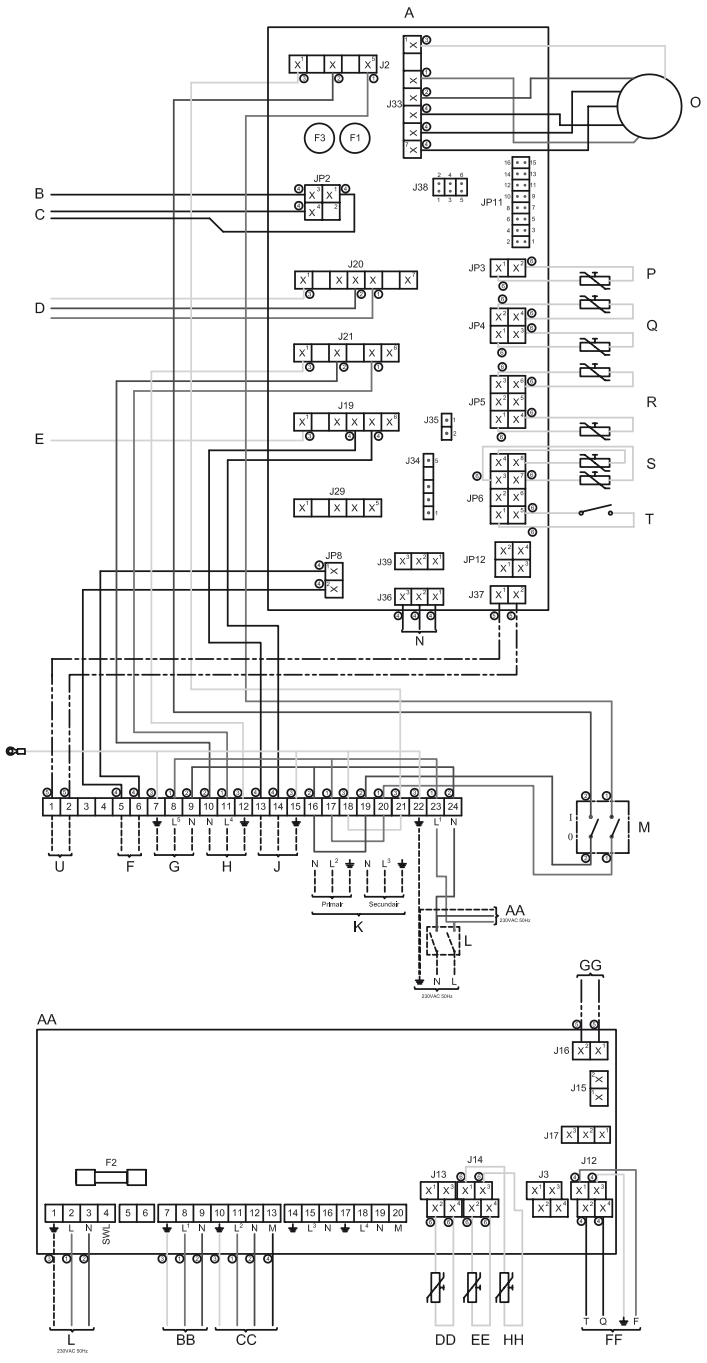
SGS

Electrical diagram SGS 28-60



COMPONENTS CONTROLLER

A	Controller
B	Ionisation rod
C	Glow ignitor
D	Gas control
E	Burner earth connection
F	Extra ON-mode switch
G	Continuous pump
H	Program controlled pump
J	Extra error signal
K	Isolating transformer
L	Double-pole mains switch
M	On/Off switch control
N	Display
O	Fan
P	Temperature sensor (T2 - bottom of tank)
Q	Dummy
R	Temperature sensor (T1 - top of tank)
S	Selection resistor
T	Pressure switch
U	Controller solarsystem (BUS-link)
F1	Fuse
F3	Fuse

CONNECTIONS MAIN CONTROLLER

1	X_5	BUS-link
2	X_6	
3	-	n.a.
4	-	n.a.
5	X_3	External ON / OFF
6	X_4	
7	⏚	Continuous pump
8	L_5	
9	N	
10	N	Program controlled pump
11	L_4	
12	⏚	
13	X_2	Extra error signal
14	X_1	
15	⏚	
16	N	Isolating transformer (primary side)
17	L_2	
18	⏚	
19	N	Isolating transformer (secundary side)
20	L_3	
21	⏚	
22	⏚	Power supply
23	L_1	
24	N	

COMPONENTS SOLAR CONTROLLER

AA	Controller
BB	Pump solar system (ON / OFF)
CC	Pumps solar system (modulating)
DD	Temperature sensor (S1 - solar collector)
EE	Temperature sensor (S2 - tank)
FF	Q/T-measuring (incl. temperature-sensor S4 - return solar collector)
GG	Controller (BUS-link)
HH	Temperature sensor (S3 - top tank)
F2	Fuse

CONNECTIONS SOLAR CONTROLLER

1	⏚	Power supply
2	L	
3	N	
4	-	n.a.
5	-	n.a.
6	-	n.a.
7	⏚	Pump solar system (ON / OFF)
8	L_1	
9	N	
10	N	Pump solar system (modulating)
11	L_2	
12	-	
13	⏚	
14	-	n.a.
15	-	n.a.
16	-	n.a.
17	-	n.a.
18	-	n.a.
19	-	n.a.
20	-	n.a.
J3	1	n.a.
	2	n.a.
	3	n.a.
	4	n.a.
J12	1	Power supply 5V
	2	Sensor return solar collector (S4)
	3	Earth
	4	Flow signal
J13	1	n.a.
	2	Sensor solar collector (S1)
	3	n.a.
	4	Sensor solar collector (S1)
J14	1	Sensor top tank (S3)
	2	Sensor tank (S2)
	3	Sensor top tank (S3)
	4	Sensor tank (S2)
J15	1	n.a.
	2	n.a.
J16	1	BUS-link
	2	
J17	1	n.a.
	2	n.a.
	3	n.a.

Colour code cables

① = brown
② = blue
③ = yellow/green
④ = black
⑤ = white
⑥ = grey/beige

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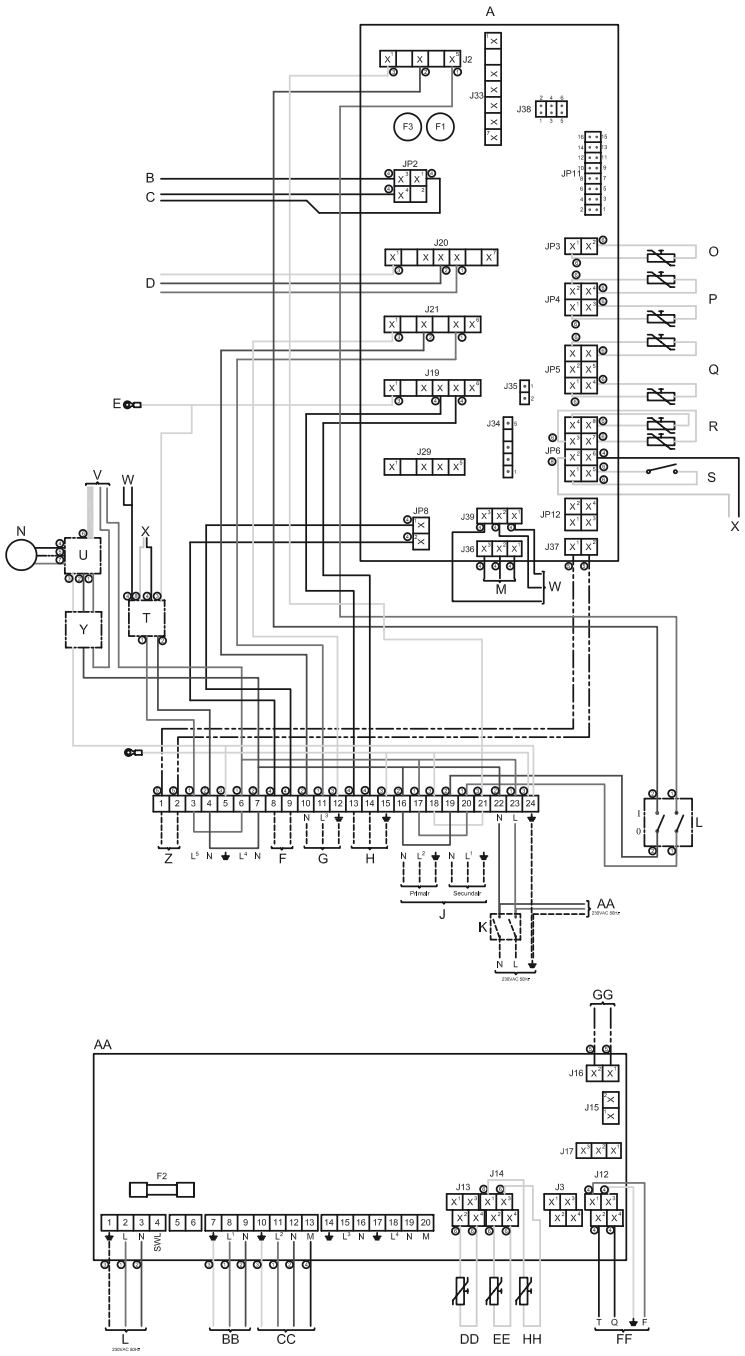
Electrical diagram SGS 80-100



COMPONENTS CONTROLLER

A	Control
B	Ionisation rod
C	Glow ignitor
D	Gas control
E	Burner earth connection
F	Program controlled pump
G	Continuous pump
H	Extra error signal
J	Isolating transformer
K	Double-pole mains switch
L	ON / OFF switch control
M	Display
N	Fan
O	Temperature sensor (T2 - bottom of tank)
P	Dummy
Q	Temperature sensor (T1 - top of tank)
R	Selection resistor
S	Pressure switch
T	Potentiostat
U	Frequency controller
V	RS-485 interface
W	Electric anodes
X	Signaling for electric anodes
Y	Mains choke and EMC-filter
Z	Solar control system (BUS-link)
F1	Fuse
F3	Fuse

CONNECTIONS MAIN CONTROLLER

1	X_5	BUS-link
2	X_6	
3	L_5	Potentiostat
4	N	
5	⏚	Frequency controller
6	L_4	
7	N	
8	X_3	External ON / OFF
9	X_4	
10	N	Program controlled pump
11	L_3	
12	⏚	
13	X_1	Extra error signal
14	X_2	
15	⏚	
16	N	Isolating transformer (primary side)
17	L_2	
18	⏚	
19	N	Isolating transformer (secundary side)
20	L_1	
21	⏚	
22	⏚	Power supply
23	L	
24	N	

COMPONENTS SOLAR CONTROLLER

AA	Control
BB	Pump solar system (ON / OFF)
CC	Pump solar system (modulating)
DD	Temperature sensor (S1 - solarcollector)
EE	Temperature sensor (S2 - tank)
FF	Q/T-measuring (incl. temperature sensor S4 - return solar collector)
GG	Control (BUS-link)
HH	Temperature sensor (S3 - top tank)
F2	Fuse

CONNECTIONS SOLAR CONTROLLER

1	⏚	Power supply
2	L	
3	N	
4	-	n.a
5	-	n.a
6	-	n.a
7	⏚	Pump solar system (ON / OFF)
8	L_1	
9	N	
10	N	Pump solar system (modulating)
11	L_2	
12	-	
13	⏚	
14	-	n.a
15	-	n.a
16	-	n.a
17	-	n.a
18	-	n.a
19	-	n.a
20	-	n.a
J3	1	n.a
	2	n.a
	3	n.a
	4	n.a
J12	1	Power supply 5V
	2	Sensor return solar collector (S4)
	3	Earth
	4	Flow signal
J13	1	n.a
	2	Sensor solar collector (S1)
	3	n.a
	4	Sensor solar collector (S1)
J14	1	Sensor top tank (S3)
	2	Sensor tank (S2)
	3	Sensor top tank (S3)
	4	Sensor tank (S2)
J15	1	n.a
	2	n.a
J16	1	BUS-link
	2	
J17	1	n.a
	2	n.a
	3	n.a

Colour code cables

① = brown
② = blue
③ = yellow/green
④ = black
⑤ = white
⑥ = grey/beige
⑦ = red
⑧ = green

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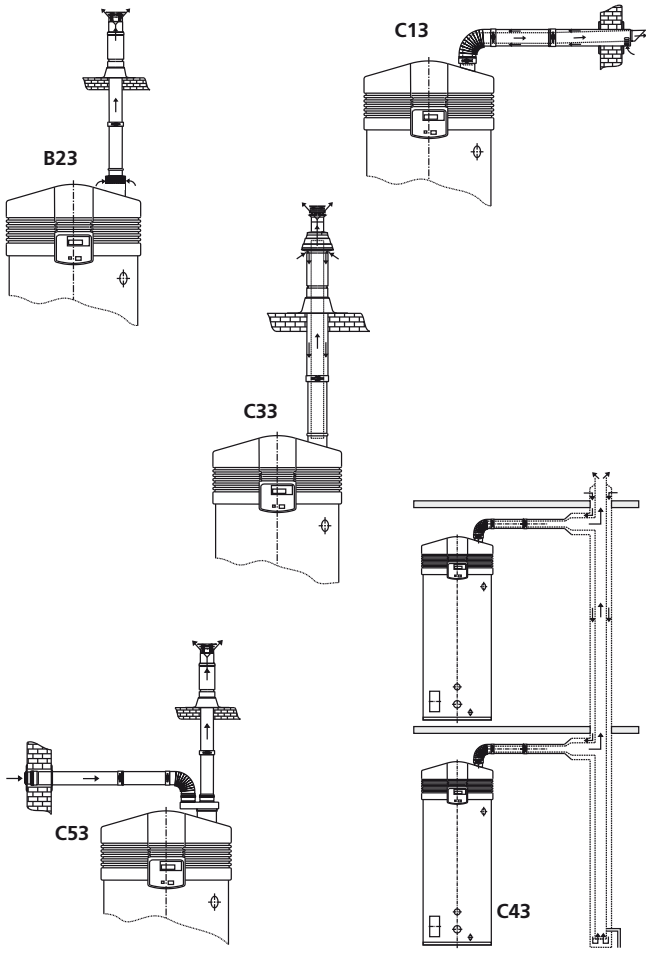
Installation options



A SGS water heater should be installed according category B23, C13, C33, C43 or C53*.

	SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100
Concentric						
Diameter (mm)	80/125	100/150	100/150	100/150	130/200	130/200
Max. length (m)	40	40	40	15	15	15
Max. 45/90° bends	7	7	7	4	3	3
Parallel (standard diameter)						
Diameter (mm)	80	100	100	100	130	130
Max. length (m)	25	80	45	25	115	60
$L_{equivalent}$/bend 90° (m)	3,9	4,6	4,6	4,6	2,4	2,4
$L_{equivalent}$/bend 45° (m)	1,1	1,2	1,2	1,2	1,4	1,4
Parallel (larger diameter for more length)						
Diameter (mm)	100	130	130	130	150	150
Max. length (m)	100	100	100	100	100	100
$L_{equivalent}$/bend 90° (m)	4,6	2,4	2,4	2,4	2,6	2,6
$L_{equivalent}$/bend 45° (m)	1,2	1,4	1,4	1,4	1,6	1,6

* All SGS are also approved for installations where the unit is supplied without venting materials (C63).

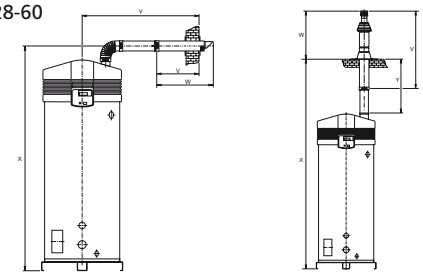
Concentric flues
It is **not** permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.

Parallel flues
- The maximum permissible length should be reduced by the equivalent length of each bend. (Note: for a parallel installation this means that 3 changes in direction amount to 6 bends (3 in the supply duct and 3 in the flue).
- The maximum length also applies if a parallel installation has different supply and flue duct lengths (B23, C53).
- Combined flues (C43) shall be fitted with a condensate drain.

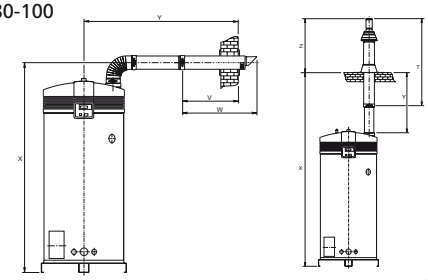
Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre.

Minimum space requirements

SGS 28-60



SGS 80-100



	SGS 28 Ø80/125	SGS 30 Ø100/150	SGS 50 Ø100/150	SGS 60 Ø100/150	SGS 80 Ø130/200	SGS 100 Ø130/200
Minimal space for wall duct (mm)						
V	550	550	550	550	640	640
W	725	790	790	790	940	940
X	1630	2170	2170	2170	2230	2230
Y	1460	1480	1480	1480	1620	1620
Y *	1010	1030	1030	1030	1170	1170
Minimal space for roof duct (mm)						
V	1305	1500	1500	1500	1730	1730
W	680	1035	1035	1035	1120	1120
X	3060	3420	3420	3420	3620	3620
X **	2110	2470	2470	2470	2670	2670
Y	1575	1415	1415	1415	1560	1560
Y **	625	465	465	465	610	610

For the parts numbers of components and flue gas ducts, etc. please refer to the “Maintenance and accessories” chapter.

* Distance without concentric pipe between bend and wall duct.
** Distance without concentric pipe between appliance and roof duct.

Data subject to change INT/1108/SGS/02
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